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| 10/803,432 | 03/18/2004 | Alastair James Mackenzie Brown | 8830-271 (195266) | 5537 |

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DRINKER BIDDLE & REATH
ATTN: INTELLECTUAL PROPERTY GROUP
ONE LOGAN SQUARE
18TH AND CHERRY STREETS
PHILADELPHIA, PA 19103-6996

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| EXAMINER |
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MONIKANG, GEORGE C

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| ART UNIT | PAPER NUMBER |
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2615

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08/09/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/803,432

Applicant(s)

BROWN ET AL.

Examiner

George C. Monikang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 10/803432.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-9 & 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Geeng, US Patent Pub. 2004/0071298 A1, in view of Kosatos et al, US Patent Pub. 2004/0125974 A1.

Re Claim 1, Geeng discloses an acoustic drive array comprising mounting means for supporting a first acoustic drive unit and at least a second acoustic drive unit and means defining an acoustically reflective surface (para 0011), said mounting means being arranged in a fixed, predetermined spatial relationship with said reflective surface such that said at least a second drive unit is disposed in front of said reflective surface (fig. 3: 204; para 0023), the configuration of the reflective surface and the disposition of the at least one high frequency drive unit relative thereto being such as to substantially

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eliminate any coherent reflection of sound from the at least one high frequency drive unit (para 0023); but fails to disclose the first acoustic drive unit and second acoustic drive unit being a midrange drive unit and a high frequency drive unit respectively. However, Kosatos et al does (para 0004).

Taking the combined teachings of Geeng and Kosatos et al as a whole, one skilled in the art would have found it obvious to modify the acoustic drive array comprising mounting means for supporting a first acoustic drive unit and at least a second acoustic drive unit and means defining an acoustically reflective surface (para 0011), said mounting means being arranged in a fixed, predetermined spatial relationship with said reflective surface such that said at least a second drive unit is disposed in front of said reflective surface (fig. 3: 204; para 0023), the configuration of the reflective surface and the disposition of the at least one high frequency drive unit relative thereto being such as to substantially eliminate any coherent reflection of sound from the at least one high frequency drive unit (para 0023) with first acoustic drive unit and the second acoustic drive unit being a midrange drive unit and a high frequency drive unit respectively as taught in Kosatos et al (para 0004) to rectify the diffraction problems that typically affect loudspeaker systems and produce a higher sound quality.

Re Claim 2, the combined teachings of Geeng and Kosatos et al disclose an acoustic drive array as claimed in claim 1, wherein the reflective surface is irregular and continuously varying, in terms of the distance from the periphery of the reflective surface to the at least one high frequency drive unit and the angle between the reflective

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surface and a plane in which the drive units of the array are mounted (Geeng, para 0010).

Re Claim 3, the combined teachings of Geeng and Kosatos et al disclose an acoustic drive array as claimed in claim 1, but fails to disclose wherein the shortest distance from the centre of the at least one high frequency drive unit to any point on the periphery of the reflective surface is 30 mm or greater, and the largest distance from the centre of the at least one high frequency drive unit to any point on the periphery of the reflective surface is 155 mm or less.

However, the distance of the reflector to the speaker is the inventor's preference thus it would have been obvious for Geeng and Kosatos et al to modify their invention for the motivation of maximizing the effect of the reflector.

Re Claim 4, the combined teachings of Geeng and Kosatos et al disclose an acoustic drive array as claimed in claim 1, wherein the reflective surface is generally concave (Geeng, fig. 3: 210; para 0023).

Re Claim 5, the combined teachings of Geeng and Kosatos et al disclose an acoustic drive array as claimed in claim 4, wherein the outer periphery of the reflective surface has a convex, curved cross section to provide a smooth convex transition between the main reflective surface and its outermost edge (Geeng, fig. 3: 212; para 0023).

Re Claim 6, which further recites, "Wherein the reflective surface has a generally elliptical periphery and a quasi-ellipsoidal configuration, without focal points." The combined teachings of Geeng and Kosatos et al do not explicitly disclose the reflective

surface being of elliptical periphery and quasi-ellipsoidal configuration without focal points as claimed. Official notice is taken that both the concepts and advantages of providing a reflective surface with an elliptical periphery and quasi-ellipsoidal configuration without focal points are well known in the art. It would have been obvious to use a reflective surface with an elliptical periphery and quasi-ellipsoidal configuration without focal points to optimize dispersion and lobing characteristics.

Re Claim 7, the combined teachings of Geeng and Kosatos et al disclose an acoustic drive array as claimed in claim 1, wherein the reflective surface incorporates a low frequency acoustic drive unit (Kosatos et al, para 0004).

Claim 8 has been analyzed and rejected according to claim 7.

Re Claim 9, the combined teachings Geeng and Kosatos et al disclose an acoustic drive array as claimed in claim 1, wherein the array includes first and second high frequency drive units (Kosatos et al, para 0004).

Re Claim 11, the combined teachings of Geeng and Kosatos et al disclose an acoustic drive array as claimed in claim 1, wherein the mounting means comprises an air-tight, sealed enclosure (Geeng, fig. 3).

Re Claim 12, the combined teachings of Geeng and Kosatos et al disclose an acoustic drive array as claimed in claim 1, wherein the mounting means is configured to minimise the baffle area surrounding the drive units (Kosatos et al, para 0004).

Re Claim 13, the combined teachings of Geeng and Kosatos et al disclose an acoustic drive array as claimed in claim 12, wherein the baffle area is configured to curve away and rearwards from the drive units (Kosatos et al, para 0005).

Re Claim 14, the combined teachings of Geeng and Kosatos et al disclose an acoustic drive array as claimed in claim 1, wherein the means defining the reflective surface comprises a reflector member (Geeng, para 0023).

Re Claim 15, the combined teachings of Geeng and Kosatos et al disclose an acoustic drive array as claimed in claim 1, wherein the reflector member is secured to the mounting means to provide an integrated, self-contained drive array (Geeng, fig. 3; para 0023).

Re Claim 16, the combined teachings of Geeng and Kosatos et al disclose a loudspeaker comprising a cabinet having an acoustic drive array in accordance with claim 1 mounted therein (Geeng, fig. 3; para 0023).

Re Claim 17, the combined teachings of Geeng and Kosatos et al disclose a loudspeaker as claimed in claim 16, including at least one low frequency drive unit in addition to the drive units of the array (Kosatos et al, para 0004).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Geeng, US Patent Pub. 2004/0071298 A1 and Kosatos et al, US Patent Pub. 2004/0125974 A1, and further in view of Nakamura, US Patent Pub. 2004/0156518 A1.

Re Claim 10, the combined teachings of Geeng and Kosatos et al disclose an acoustic drive array as claimed in claim 1, but fail to disclose wherein the mounting means includes a first portion supporting the midrange drive unit and an arm portion extending from said first portion and supporting the at least one high frequency drive

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unit, whereby the at least one high frequency drive unit is cantilevered in front of the reflective surface. However, Nakamura does (fig. 6).

Taking the combined teachings of Geeng, Kosatos et al and Nakamura as a whole, one skilled in the art would have found it obvious to modify the acoustic array of Geeng and Kosatos et al with wherein the mounting means includes a first portion supporting the midrange drive unit and an arm portion extending from said first portion and supporting the at least one high frequency drive unit, whereby the at least one high frequency drive unit is cantilevered in front of the reflective surface as taught in Nakamura (fig. 6) so that the loudspeakers can be placed in a variety of locations without changing the dispersion characteristics.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George C. Monikang whose telephone number is 571-270-1190. The examiner can normally be reached on M-F. alt Fri. Off 7:30am-5:00pm (est).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

George Monikang

8/5/2007



VIVIAN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2200